Gains that Could Be Achieved through Full Application of Deming's Total Quality Management

A Scholarly Paper Submitted By

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ABSTRACT

In his seminal work, *Out of the Crisis,* W. Edwards Deming provided American corporations with a direction and method for improving both man and machine in an effort to transform the way in which these corporations performed and managed both service and industry functions. His ideas for statistical control have taken hold within the workplace and are becoming increasingly popular among managers and corporate executives that are intent on improving the bottom line. However, most companies have limited their incorporation of Deming's methods and failed to include Deming's approach to improved leadership and employee involvement. This study will review the human aspects of Deming's ideas and their convergence with an existing theory on employee engagement. Additionally, the impacts of employee engagement will be reviewed in order to better understand the potential gains that may be had by corporations, when they implement Deming's Total Quality Management, to the extent that he originally intended.

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INTRODUCTION

W. Edwards Deming identified significant problems in the management of the United State's industrial systems. Citing the mismanagement of the capabilities and misuse of the knowledge of employees in all industries, he felt that "the United States may be today the most underdeveloped nation in the world" (Deming, 1986, p. 6).   In one example of the poor management of American corporations, he pointed to systems, generated by management, which would result in a series of defective products or poor performance. Management auditors would then put the employees under statistical scrutiny in order to determine why or how the employees were making mistakes. Instead of looking at how the manufacturing system could be improved or how employees could be trained to better identify conforming and non-conforming products, the management would tell the employees that they needed "to do better" (Deming, 1986). Deming saw this managerial practice as a stable cycle of failure that would lead to the slow demise of the company, with employees continuing to be blamed for faults of the system and becoming fearful and distrusting of management's direction.

In order to provide direction and guidance for the transformation of this American style of management, Deming (1986) spoke of building quality into the system, reducing wasteful practices, and improving "constantly and forever the system of production and service, [improving] quality and productivity, and thus constantly [decreasing] costs." Deming's Total Quality Management (TQM) focused on the measurement and improvement of systems in order to ensure a value-added process that met the needs of the customer (Lawler et al, 1998). In addition to improving statistical control through focused measurement and improvement of production quality and performance, Deming (1986) sought to bring new levels of involvement to the hourly worker. Citing a 1981 report from Ralph E. Stinson, president of Bettcher Manufacturing Corporation, Deming (1986) highlighted the importance of employee involvement in planning and goal-setting. He felt that a "positive team spirit, along with intense loyalty and high motivation" could be predicted by effective communication with management (Deming, 1986). He also felt that in addition to understanding the work at hand, management must seek out and abolish any "barriers on the job that rob the hourly worker of his birthright, the right to pride of workmanship" (Deming, 1986).

Deming's 14-points (See Appendix B, Deming, 1986) offered a means to improving the quality and productivity of American industry while increasing the involvement and morale of American workers, engineers, managers, and executives. After surveying the use of TQM within Fortune 1000 companies in 1990, 1993, and 1996, Lawler and his colleagues surmised that TQM had peaked by the early- to mid-1990's, and in most companies today Deming's practices have been parceled out by management and melded with other rising socio-technical management tools and programs (Lawler et al, 1998). Unfortunately, Lawler's research only provided information on the operational aspects of TQM (e.g. self-inspection, statistical control methods, cost-of-quality monitoring) and did not assess the amount of employee involvement or leadership transformation that was taking place with respect to TQM.

The missing data on TQM-associated employee involvement and leadership from Lawler's research inadvertently mirrors a trend identified by Deming among U.S. corporations. Across the spectrum, industries, businesses, and local and federal government agencies continually seek out methods for reducing costs, improving quality of product and service, and hopefully improving the bottom line, but they do not include

leadership development or they fail to recognize the importance of having an employee that is involved in his work.

This philosophy of focusing on quality and performance, without considering the contributions of the front-line employee is seen in newer management tools, such as Six Sigma or Balanced Scorecard. Six Sigma's moniker has its history in the percent of defect that would be seen in the production of an item on an assembly line. Based on statistical analysis of the number of defects that are generated by a system, quality improves dramatically if analysts focus not on the historical $\pm 3\sigma$ defect per thousand, but instead tighten their statistical control to $\pm 6\sigma$ and measure defects per million (Taghizadegan, 2006). Even according to its own practitioners, some versions of Six Sigma are seen as an advanced form of TQM, with the advancement being in the level of application (Breyfogle et al, 2001). According to Breyfogle et al (2001), Six Sigma should not be limited to the level of a quality management program, but should be seen as a strategic-level, corporate initiative.

Similar to Breyfogle's opinion of Six Sigma, the Balanced Scorecard (BSC) attempts to "move businesses from monitoring to measurement; from measurement to management and from management to direction

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setting" (Nair, 2004). According to Nair (2004), practitioners of BSC seek out key performance indicators in the financial, non-financial, and operational areas of their company and ensure that they appropriately balance these indicators with the performance measurements and strategy of the company. In other words, Balanced Scorecard will aid companies in aligning corporate strategy with the company's primary activities (Nair, 2004). Though using different terms, Six Sigma and Balanced Scorecard offer tools that point out the importance of process measurement and control. However, of the texts reviewed for this research (e.g. Breyfogle et al, 2001; Creveling, 2007; Nair, 2004; and Taghizadegan, 2006), none of them mentioned or even inferred the need to implement Deming-style leadership or the importance of employee involvement in the transformation of production and management.

A growing body of research is focusing on the human-oriented management approaches, and yet corporate America seems to be heading in the opposite direction in an effort to streamline their processes, reduce waste, and improve their bottom line (Pfeffer, 1998; Luthans, 2001). The intent of this research is to complement the existing research by studying the gap that is apparently developing between Deming's

intended philosophy of Total Quality Management and the way companies are actually implementing his processes.

To begin to study the portions of TQM that are being excluded from recent implementations and interpretations, it seems necessary to review the aspects of Deming's approach that govern employee involvement and the convergence of Deming's approach with existing literature on employee engagement in the workplace.

EMPLOYEE INVOLVEMENT AND EMPLOYEE ENGAGEMENT

Deming's ideas of employee involvement in the context of TQM seem to converge with an existing theory of employee engagement. Kahn (1990) described the terms of personal engagement and disengagement as the manner in which people present or withdraw their personal selves during the performance of their work. An engaged employee will act and express themselves on a cognitive, emotional, and physical level; whereas a disengaged employee will not (Kahn, 1990). As presented by Kahn (1990), engagement and disengagement are at opposite ends of a continuum and can fluctuate according to the levels of cognitive, emotional, and physical engagement. As an example, a fully engaged employee would exhibit behaviors on three levels: the cognitive level by seeking out new solutions to a defect in the system; the emotional level by providing discreet counsel to a peer or subordinate when they appear to be worried about something outside of the work environment; and the physical level by showing up at work, willing and ready to do their best. Within Deming's research, employees and management alike are expected and encouraged to become involved and behave in a manner that exemplifies the same levels of engagement that are given in Kahn's theory.

The link between Deming's approach and Kahn's employee engagement theory is further solidified through a review of the three psychological conditions that Kahn identified as shaping how and to what extent employees are engaged or disengaged in the workplace. Based on Kahn's research (1990), meaningfulness, safety, and availability seemed to be the underlying concerns of each employee as they performed in their organization. Prior to personally engaging or disengaging, each person would unconsciously ask three questions: "(1) How meaningful is it for me to bring myself into this performance? (2) How safe is it to do so? and (3) How available am I to do so?" (Kahn, 1990, p. 703).

Psychological meaningfulness was experienced by employees that felt their effort was "worthwhile, useful, and valuable – as though they made a difference and were not taken for granted" (Kahn, 1990). In one of his 14-points, Deming (1986) implored American industry to create this same psychological condition in employees, by removing obstacles that block employees from their birthrights: pride in workmanship and pride in a job well done. Also in line with Kahn's idea of meaningfulness, Deming stated that people were being taken for granted and were being dealt with as a commodity: bought for a value, used until no longer necessary, and then tossed back into the unemployment market.

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Kahn (1990) presents the condition of psychological safety as being able to perform without fear of repercussions to one's "self-image, status, or career." Another of Deming's 14-points of TQM is to "Drive out fear. No one can put in his best performance unless he feels secure" (Deming, 1986). Deming cited an example of an employee fearing management – a foreman that did not want to slow production for fear that he might reduce the company's output; he wouldn't even slow down for maintenance. Unfortunately, three things happened: the system broke down, he failed to make quota, and the entire line had to be shut down for a four-day repair period (Deming, 1986). Other examples of ensuring psychological safety within Deming's approach would be allowing and welcoming production-line employee identification of improvements to the system or purchaser identification of faulty raw materials. In the problems with fear that Deming identifies, he calls for even the newest employee to be trained and to feel secure in identifying an area for improvement. This would seemingly serve as a mitigating factor to Kahn's (1990) observation that person's of lower rank with less leverage experience anxiety and frustration when deviating or even considering deviation from norms. Per Deming, the most important ideas for change would come from the worker

on the assembly line, unless he was fearful of the consequences of his actions.

Psychological availability, as defined by Kahn (1990), is a condition that indicates whether people have the physical, emotional, and psychological resources to engage at any given moment. Deming pointed to poor leadership as having a major impact on the availability of employees. Citing research conducted by Heero Hacquebord, Deming (1986, p. 83) commented that poor supervision and poor management is strongly correlated to three significant problems in the workforce: an increase in the number of days off with pay for accidents on the job, employee absenteeism, and employee turnover. These are examples of the physical aspects of availability. According to Kahn, the emotional and psychological aspects of availability are measured in terms of emotional energy and insecurity. Though muted, Deming's solutions for issues that drain emotional energy are inferred from his proposed dealings with an employee that is concerned over his own health or possibly worried over issues with friends or family outside the workplace. Deming (1986) suggests that a leader should provide counsel to the employee and that in some cases this can improve employee confidence and, subsequently, performance. Deming directly addresses restored confidence in both the

personal and professional lives of employees, thereby showing a distinct concern for an employee's emotional insecurity. Looking back to Deming's thoughts on fear, given above, there is further indication of Deming's concern for the psychological availability and insecurity of workers in the American workplace.

Though not addressed in strict psychological terms, Deming seemed to understand the importance of creating a workplace that provided psychological meaningfulness, safety, and an environment which encourages employee availability. By calling to attention the need for employee involvement in the planning and execution of transformation, he called for management and employees to cognitively engage in their workplace. By pointing to fear as a poor management tool, he sought to improve emotional engagement in the workplace. By suggesting that strong, well-trained leadership should replace management-by-quota, Deming pushed employees to become physically engaged in the workplace. Through numerous examples, the employee engagement theory of Kahn (1990) seems to converge with Deming's approach to management and provide further understanding of the psychological aspects of TQM.

As explained by Luthans (2001), Kahn's theory of engagement provides the theoretical explanation for why employees engage in their workplace. However, the Gallup Organization, in seeking to understand enhanced performance through management, developed a scale that empirically identified how a corporation can measure the engagement of their employees. With this scale against the backdrop of Kahn's theory, a manager knows both the why and the how for improving employee engagement.

In an effort to understand the nature of success and salient management practices across a wide variety of industries, The Gallup Organization, over a 30 year period, conducted thousands of qualitative focus groups which centered on employee job satisfaction and employee perceptions of work characteristics (Luthans, 2001). The findings of these focus groups were then factor analyzed in order to derive the 12 questions that now constitute 12 of the 13 items that make up the Gallup Workplace Audit (GWA); the 13th item measures overall job satisfaction (OJS). Other than OJS, the GWA surveys items, such as: "At work, my opinions seem to count"; "I know what is expected of me at work"; "There is someone at work who encourages my development"; and "The mission of my company makes me feel my job is important" (complete list found in Appendix C).

As further explained by Harter and colleagues (2002b), the 12 items focus on ensuring that employees know what is expected of them at work, that employees have the necessary tools·and equipment, that employees feel important to the process, and that employees have an opportunity to improve themselves and others. Therefore, the GWA provides a means for measuring attitudinal outcomes such as job satisfaction and intent to stay

with the company, and a means of measuring positive, affective antecedents such as cognitive and emotional engagement of employees (Harter et al, 2002b).

After developing this survey, Gallup conducted time-lagged research over a two-year period in 36 companies, across 21 industries. The data set for their meta-analytic review consisted of nearly 8,000 business-units within the 36 companies. The results of the meta-analysis showed strong generalizability that most (no fewer than 10 out of 12) of the employee engagement items correlated with decreased turnover, increased customer satisfaction, increased productivity, and increased profit (Harter et al, 2002a, Table 9.1). Furthermore, the meta-analysis conducted two-year predictive research to determine whether employee engagement was an antecedent to organizational performance and other outcomes.

The findings of the predictive meta-analysis indicated that business units with higher employee engagement were more likely to succeed, with success defined as being above the within- and across-company medians for performance (Harter el, 2002a, Table 9.1). This corresponds neatly with Lawler et al (1998), in that employee involvement, TQM, and process reengineering correlated strongly with high levels of organizational

performance over a lagged period of three years, thus indicating that high-performance work practices precede and tend to cause improved financial performance.

CONCLUSION

Corporate America is seeking out new and improved means for increasing the bottom line, and they are turning to socio-technical tools, such as Balanced Scorecard and Lean Six Sigma, for guidance on how to improve the machinations of the system. These tools are being implemented with disregard for the fact that Deming also spoke of "a joy of workmanship" that hourly workers, engineers, managers, and supervisors were all entitled to and even desired in performing their jobs. In contrast to the current management tools that focus myopically on statistical control and strategy development, Deming wanted corporate America to also focus on the heart and soul of the machine - the involved and engaged employee.

If a corporation does intend to transform itself in order to meet the growing demands of the global economy, and they apply TQM without considering or involving the employee, then what will be their return on investment? What will they gain? Lawler et al's (1998) study suggests that companies will attain some level of improved performance. However, both Lawler et al (1998) and the findings of Harter et al (2002a & b) agree with the assertion that if management implements TQM without utilizing the engagement aspects of Deming's transformative approach, then the

employees are not fully engaged and they will not reach their full capacity for achievement.

Deming believed that a comprehensive approach towards transformation of management would involve systems management and leadership. Based on his guidance and the literature reviewed above, there exists a symbiotic relationship between TQM and employee engagement. Improved employee engagement techniques will facilitate the implementation and continued utilization of Deming's approach. And continued, engaged utilization of Total Quality Management will provide increases in performance, quality, and leadership.

W. Edwards Deming felt that a transformation was necessary in American corporate management. To accomplish this transformation, he stated that leadership should focus on improvement of quality and productivity, foster pride in workmanship, and seek to improve the performance of both man and machine. With such guidance as "Institute leadership instead of quotas" or "Drive out fear, so that everyone may work effectively for the company" (Deming, 1986), he called for a "new philosophy" – a philosophy strongly-based in the positive impacts of employee engagement.

APPENDIX A: References

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APPENDIX B: Deming's 14-Points: Towards a New Philosophy in Management (excerpted from Deming, 1986)

1. Create constancy of purpose toward improvement of product and service, with the aim to become competitive and to stay in business, and to provide jobs.

2. Adopt the new philosophy. We are in a new economic age. Western management must awaken to the challenge, must learn their responsibilities, and take on leadership for change.

3. Don't depend on mass inspection; build quality into the product.

4. Don't award business based on price; minimize total cost; build long-term relationships of loyalty and trust with a single suppliers.

5. Improve constantly and forever the system of production and service, to improve quality and productivity, and thus constantly decrease costs.

6. Institute training on the job.

7. Institute leadership. The aim of supervision should be to help people and machines and gadgets to do a better job. Supervision of management is in need of overhaul as well as supervision of production workers.

8. Drive out fear, so that everyone may work effectively for the company

9. Break down barriers between departments. People in research, design, sales, and production must work as a team, to foresee problems of

production and in use that may be encountered with the product or service.

10. Eliminate slogans, exhortations, and targets for the work force asking for zero defects and new levels of productivity. Such exhortations only create adversarial relationships, as the bulk of the causes of low quality and low productivity belong to the system and thus lie beyond the power of the work force.

11. Eliminate work standards (quotas) on the factory floor. Eliminate management by objective. Eliminate management by numbers, numerical goals. Substitute leadership.

12. Remove barriers that rob the hourly worker of his right to joy of workmanship. The responsibility of supervisors must be changed from sheer numbers to quality. Remove barriers that rob people in management and in engineering of their right to joy of workmanship. This means abolishment of the annual merit rating and of management by objective.

13. Institute a vigorous program of education and self-improvement.

14. Put everybody in the company to work to accomplish the transformation. The transformation is everybody's job.

APPENDIX C: 12 Items of Gallup Workplace Audit (Harter et al, 2000)

1. My opinions seem to count.

2. Mission of company makes me feel job is important.

3. Associates committed to doing quality work.

4. Have a best friend at work.

5. In the last six months, feedback on my progress.

6. Opportunities to learn and grow.

7. Know what is expected of me.

8. Have the materials/equipment I need.

9. Have the opportunity to do my best.

10. Received recognition in the last week.

11. Someone at work seems to care about me.

12. Someone at work encourages my development.